Markets for Education

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February 9, 2017

Human Capital

Labor viewed as a set of skills

Improvements in labor quality central to economic growth

Labor quality acquired through training, education, health care

Workers face impediments to investing in quality

- Early start is crucial, when consumer not decision-maker
- Difficult to borrow for investment in human capital
  - High risk, no collateral
  - Education is part consumption, part investment

Employers underinvest in improving labor quality

- They have no property right in improved skills

Conclusion: In free market, underinvestment in human capital

Elementary and Secondary Education

Grass-roots public education movement

Mandated attendance

U.S. stands out as pioneer in universal education

Local public financing and public production

Great regional and racial differences

Post WWII, state and federal roles grow

Public Elementary and Secondary Schools
Enrollment, Expenditures, and Graduation Rates

	Enrollment % of pop 5-17	Expenditures per pupil 2015 dollars	High school grads % of pop 17
1870	65	--	2
1920	78	794	17
1950	83	2,602	59
2000	89	12,008	70
2013	93	13,142	82

Source: *Digest of Education Statistics 2015*, National Center for Education Statistics. .

Literacy and Numeracy in Selected Years

Percent of Population

	Literacy		Numeracy	
	White	Black	White	Black
1850	90	57	87	70
1870	91	17	88	65
1930	97	83	96	88

Source: John Parman, “Education,” *Oxford Handbook of American Economic History*, forthcoming.

Public Elementary and Secondary Schools, Revenue by Source
Percent of Total Revenue

Year	Federal	State	Local	Local property tax
1920	0.3	16.5	83.2	---
1930	0.4	16.9	82.7	---
1940	1.8	30.3	68.0	---
1950	2.9	39.8	57.3	---
1960	4.4	39.1	56.5	---
1970	8.0	39.9	52.1	---
1980	9.8	46.8	43.4	---
1990	6.1	47.1	46.8	35.9
2000	7.3	49.5	43.2	33.4
2010	12.7	43.4	43.9	35.4
2013	9.3	45.2	45.5	36.8

Source: *Digest of Educational Statistics 2015*, National Center for Education Statistics

Revenue Raised per Pupil by One-Mill Property Tax, Ohio, 2008

One-mill property tax = $1 tax per $1,000

Franklin County - Columbus	
Upper Arlington CSD	$534
Hamilton LSD	$131
Cuyahoga County - Cleveland	
Orange CSD	$867
Cleveland MSD	$149

Source: *Property Taxation and School Funding*. Ohio Department of Taxation, Feb. 2010

Expanding School Choice

Allow student movement within or between districts

Vouchers for enrollment in private schools

Authorize charter schools within public system

Private Elementary and Secondary Schools
Enrollment and Tuition, 2011-12

	All schools	Elementary	Secondary	Elem-Second
			Enrollment (1,000)	
Total	4,480	2,134	732	1,614
Catholic	1,892	1,244	512	136
Other religious	1,605	610	116	878
Non-sectarian	982	279	103	600
			Tuition ($)	
Catholic		5,330	9,790	
Other religious		7,960	16,520	
Non-sectarian		18,170	25,180	

Source: *Digest of Educational Statistics 2015*, National Center for Education Statistics

Alternative Voucher Plans

Milwaukee -- early adopter of traditional plan

Florida -- Tax Credit Scholarship Program

Nevada –Education Savings Accounts

Private and Charter School Enrollments
Percent of Total Elementary and Secondary Enrollments

	2001	2013
Private schools		
Total	11.8	9.8
Elementary	14.1	11.3
Secondary	7.4	7.0
Charter schools		
Total	0.9	4.6
Elementary	0.7	3.5
Secondary	1.1	6.5

Source data: *Digest of Education Statistics 2015*, National Center for Education Statistics

Average Reading, Math, and Science Literacy Scores
15-Year Old Students, 2012

	Reading	Math	Science
Canada	523	518	525
France	505	495	499
Germany	508	514	524
Japan	538	536	547
Korea	536	554	538
Netherlands	511	523	522
UK	499	494	514
US	498	481	497
CT	521	506	521
FL	492	467	485
MA	527	514	527

Source: *Digest of Educational Statistics 2015*, National Center for Education Statistics

Higher Education

Profitable investment, difficult to finance

BA worth $1M compared to high school diploma

Earnings gains high on average, but high variance

Student not able to diversify portfolio

No tangible collateral for loans

Loans typically 10 year, but earnings may come later

Baumol cost disease – real tuition costs rise

Growth of for-profit sector

Median Annual Earnings

Full-time year-round workers, 25 and older

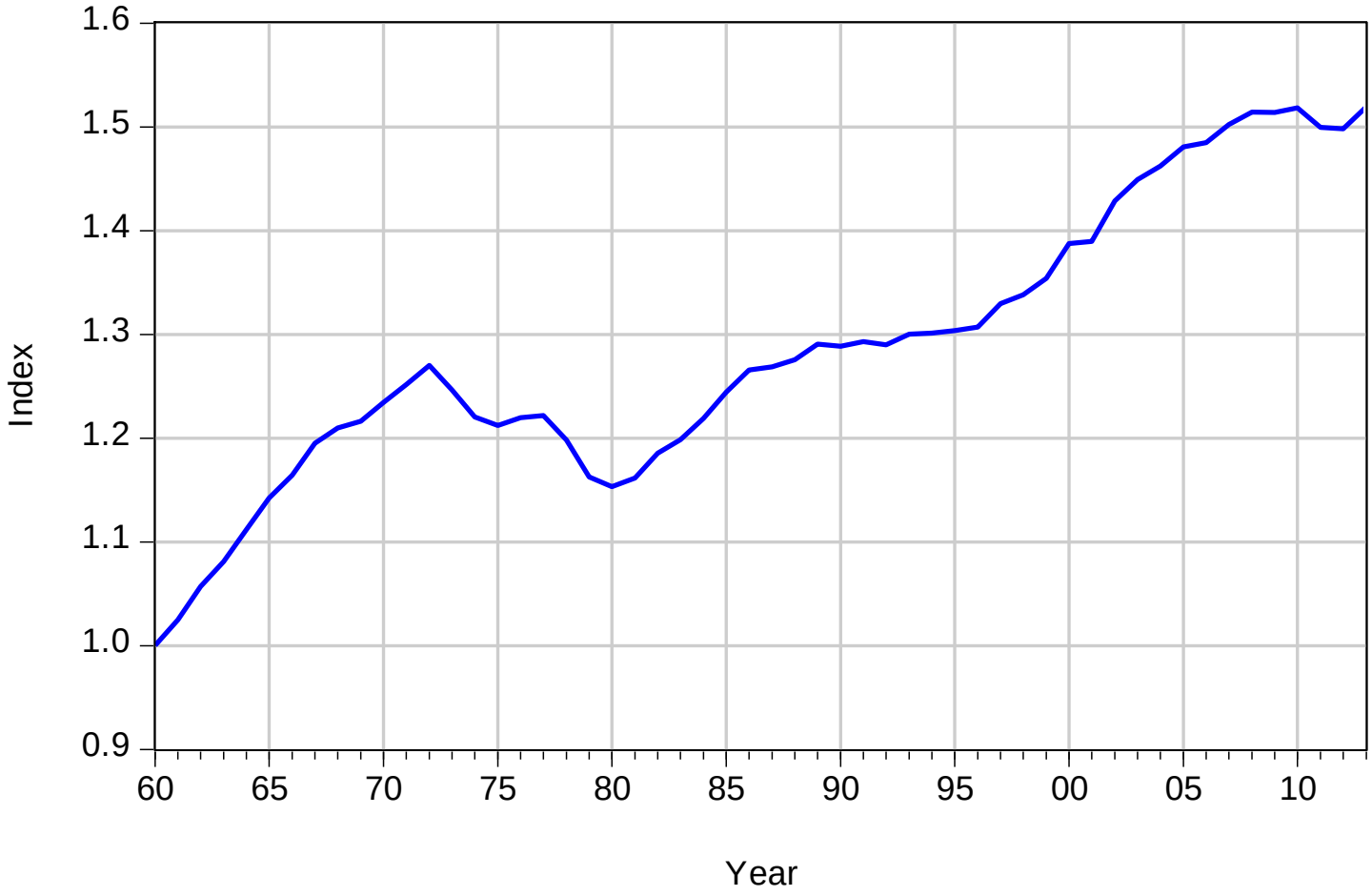
Highest level of education

	All groups	<9	12	BA	MA	PROF	PhD
1991							
Male	54,290	56	85	129	157	234	181
Female	37,860	55	85	132	159	212	196
2014							
Male	51,400	52	80	133	165	237	196
Female	40,830	51	75	126	149	225	197

Percent change in median earnings, 1991-2014

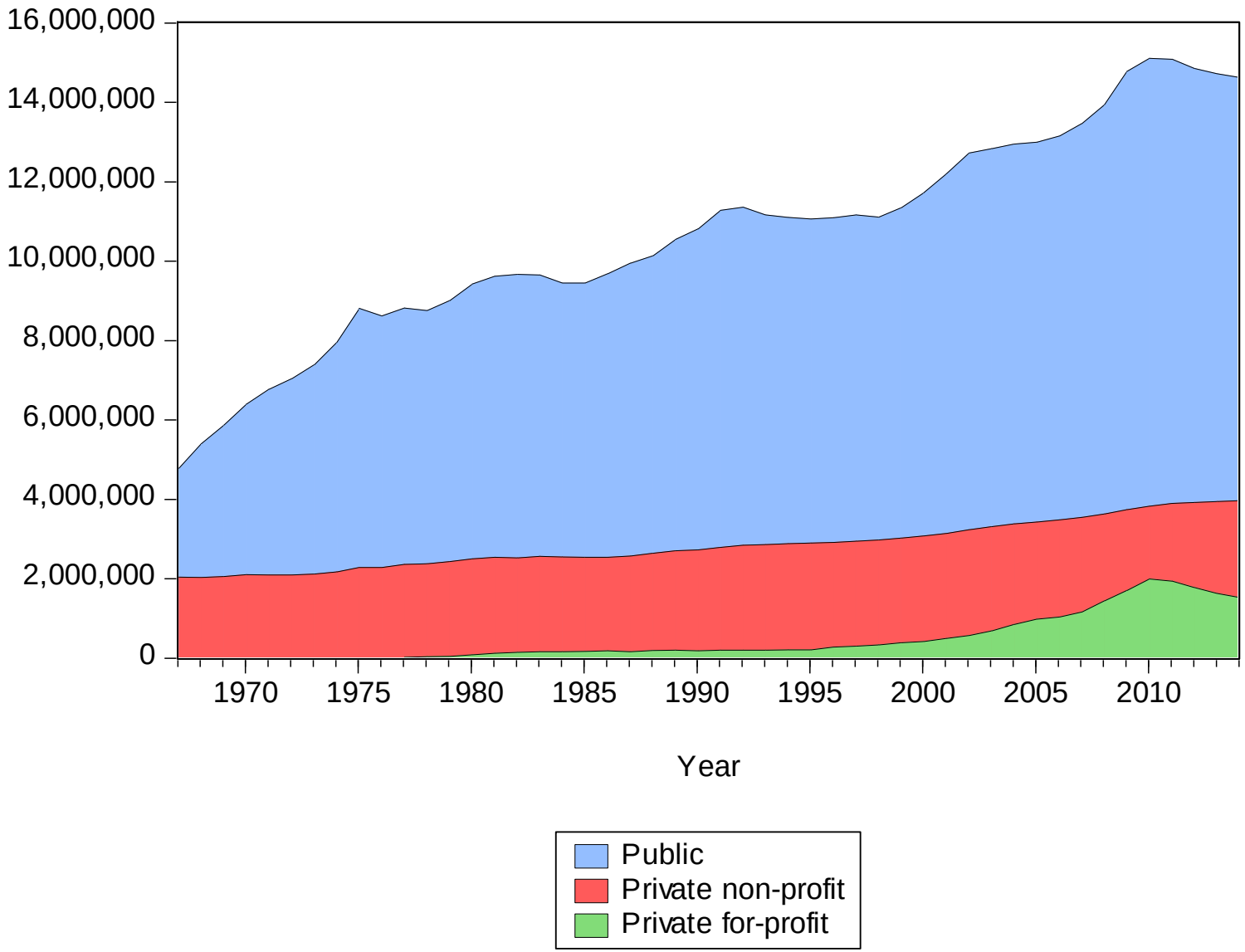
Male	-5	-12	-11	-3	-1	-4	3
Female	8	1	-5	3	1	14	8

College Cost Relative to CPI, 1960-2013
1960 = 1



Source data: *Digest of Education Statistics 2015*, National Center for Education Statistics

Enrollments in Degree-Granting Post-Secondary Schools, 1967-2014



Federal Aid to Student Investment

Pell Grants (1972)

- Means tested
- Average grant = $3,800 in 2011
- $36B in total grants in 2011
- Percent of students receiving in 2011-12
  - Public 4-yr 35
  - Public 2-yr 32
  - Priv non-prof 37
  - For-profit 63

Federal Direct Student Loans

- Changed from loan guarantee to direct in 2010
- Average loan = $4,893 in 2011
- $116B in new loans in 2011
- ~ $1.2T in total outstanding loans currently
- Default rates a concern

Default Rates on Student Loans

Percent of borrowers who began repayment 10/1/2012 and were 9 months behind in repayments by 9/20/15

School type	Default rate
Public	11.3
Private non-profit	7.0
Private for-profit	15.0

Source: U.S. Department of Education, Sept. 28, 2016

Do Differences in Human Capital Explain Differences in the Wealth of Nations?

	2015	2013
		School years
	GDP/N	completed
US	$56,116	12.9
Kenya	$3,089	6.3

Assume each extra year of schooling raises wages by 10%

If Kenya catches up in education, GDP/N would be 2x higher

Still leaves much unexplained

Source data: World Bank and United Nations

END